

Appendix E

Supplemental Information for

U.S. Army Corps of Engineers Permitting Requirements

Appendix E

Supplemental Information for USACE Permitting Requirements

E.1 Purpose and Introduction

The purpose of this appendix is to provide supplemental information needed to facilitate the environmental review for the U.S. Army Corps of Engineers' (USACE's) permitting processes under the authority of Sections 10 and 14 of the Rivers and Harbors Act (RHA) and Section 404 of the Clean Water Act (CWA) and to document the stage at which material will be available and presented.

E.1.1 Information Addressed in Recirculated Draft EIR/ Supplemental Draft EIS

The following additional information has been covered within the text of the Partially Recirculated Environmental Impact Report/Supplemental Environmental Impact Statement (RDEIR/SDEIS): a Purpose and Need Statement reflecting the role of the USACE in its CWA Section 404 and Rivers and Harbors Act responsibilities; impacts on waters carried through to all alternatives; effects on navigation carried through to all alternatives; and a conceptual compensatory mitigation description for all alternatives.

Information provided within this appendix is listed below:

- Clean Water Act Section 404
 - Impacts to “waters of the United States”
 - Conceptual Description of Mitigation for Impacts
- Rivers and Harbors Act Section 10
 - Potential effects to navigation
- Rivers and Harbors Act Section 14 (Section 408)
- National Historic Preservation Act Section 106
- Executive Order 11988

The informational requirements under the Section 408 process necessarily include a detailed level of engineering design, as well as a detailed level of analysis related to effects on USACE's civil works projects and indirect hydraulic effects. The information contained in the current CEQA/NEPA documents will not fully meet this level of detail and additional informational submittals and analysis may be necessary. As a result of these submittals, prior to final Section 408 permission, additional NEPA compliance by USACE may be required. The need for supplemental information may apply to RHA Section 10 as well.

E.1.2 Information Addressed Prior to Record of Decision

In March 2013, USACE Sacramento District developed a white paper entitled “BDCP: Permit Application Approach for CM-1” (the White Paper). Based on the White Paper, the Sacramento District envisions two separate RODs. First, USACE will “adopt the EIS” and issue a ROD generally accepting the use of the Bureau of Reclamation’s (Reclamation’s) Final Environmental Impact Statement (FEIS) for future permit decisions at the point that the Reclamation issues its ROD for the FEIR/EIS. USACE can file its ROD at least 30 days after Reclamation files the FEIS with Environmental Protection Agency (EPA)—preferably concurrent with or after Reclamation files its ROD. Second, USACE will issue a ROD or RODs at the time that “phased” permits are issued. These statements assume that the Supplemental DEIS properly describes the conveyance facility at the project level.

The information that must be addressed in the CWA Section 404 and RHA Section 10 ROD and in subsequent permits includes:

- Clean Water Act Specific
 - Final Compensatory Mitigation Plan (CWA “Mitigation Rule”)
 - Compliance with the CWA Guidelines (LEDPA, impact minimization, anti-degradation, etc.)
 - Public Interest Review
- Compliance with other Federal Laws
 - ESA
 - Section 106 (NHPA) “Frequently Asked Questions” Q-30 provides that “at the time the final EIS is released, section 7 and section 106 consultations should be completed and the results addressed within the ROD.
 - Executive Orders 11988, 11998, and 11990
 - Clean Air Act General Conformity Rule
 - Magnuson-Stevens Fishery Conservation and Management Act
 - Fish and Wildlife Coordination Act
 - Section 401 Water Quality Certification

This information is currently in development and will be provided to USACE as part of the Section 404, Section 10, and Section 408 permit processing. All information shall be presented for USACE review and approval and shall be submitted prior to issuance of subsequent RODs.

E.2 CWA Section 404

E.2.1 Federal Clean Water Act of 1972 (33 USC 1251 et seq.) Overview and Process

Activities that would result in the discharge of dredged or fill materials into waters of the United States must obtain authorization from USACE pursuant to Section 404 of the federal CWA (33 USC 1251 et seq.). This permit is generally referred to as a *404 permit*.

A Section 404 permit can take the form of either a General Permit or an Individual Permit. General Permits, which can be structured as Nationwide Permits, Regional General Permits, and Programmatic General Permits, apply to specific classes of activities that have been determined to be capable of causing no more than minimal impact on the aquatic environment (e.g., construction of road crossings, installation of utility lines, and operations and maintenance activities) (33 Code of Federal Regulations [CFR] 325.5(c)). Individual Permits are designed for activities that have the potential to have more than a minimal effect on jurisdictional waters or that otherwise do not qualify to proceed under a General Permit. The fill that would occur in connection with the proposed project, or project alternatives, would require an Individual Permit.

The process for obtaining an Individual Permit includes: (1) submission of an application to USACE; (2) a public notice and comment period; (3) coordination with other resource agencies (in accordance with the Endangered Species Act, Historic Preservation Act, and other applicable laws or regulations); (4) state water quality certification; and (5) issuance or denial of the permit. A complete permit application includes the location, purpose and need for the proposed project (along with all reasonably related activities); the purpose of the activities involving the discharge (along with the type and quantity of materials to be discharged); drawings, sketches, and plans sufficient for public notice; a schedule of project activities; names and addresses of all adjoining property owners; locations and dimensions of adjacent structures; and a list of authorizations required by other federal, state, or local agencies for the work (including all approvals and denials already received) (33 CFR 325.1). Within 15 days of submission of an application, USACE conducts a preliminary assessment of the application to determine if it is complete, and once the application is complete, USACE publishes a public notice in the Federal Register (33 CFR §§ 325.2 (a)(2), 325.3). Typically, the public and interested agencies are given 30 days to comment, and USACE may hold a public hearing on the application. Once public notice is provided, USACE is required to consult with various agencies prior to permit approval, and to “fully consider” their views in deciding whether to issue a permit (33 CFR 320.3).

Pursuant to Section 401 of the CWA, states can certify or deny federal permits or licenses that might result in a discharge to *state waters* (33 USC 1341), and California Department of Water Resources (DWR) must obtain a *water quality certification* or waiver from the state indicating that the proposed activity complies with all applicable state water quality standards, limitations, and restrictions, before USACE will issue an Individual Permit. Section 404 grants USACE principal responsibility to regulate discharges of dredged or fill material into waters of the United States, but the federal EPA retains the right to “veto” a USACE permit (33 USC 1344(c)) if the EPA determines, after notice and opportunity for public hearings, that the permitted activity would not comply with the Section 404(b)(1) Guidelines or would have unacceptable adverse impacts on water supplies or fishing, wildlife or recreation areas (40 CFR 231.4). But, no affirmative approval is required from the EPA prior to permit issuance.

Substantively, USACE evaluates applications for Individual Permits for compliance with the Section 404(b)(1) Guidelines (40 CFR Part 230) and USACE' regulations (33 CFR Part 325) (33 USC 1344(b)(1)). The Section 404(b)(1) Guidelines contain four main elements: (1) the requirement to identify and analyze project alternatives, and select the alternative that avoids and minimizes impacts on jurisdictional waters to the maximum extent practicable, and is the least environmentally damaging alternative that achieves the overall project purpose (often referred to as a 404(b)(1) alternatives analysis); (2) the prohibition against projects that would result in significant degradation of water quality (which typically equates with compliance with state water quality standards pursuant to Section 401 of the CWA); (3) an analysis of the potential environmental impacts and implementation of measures that adequately mitigate unavoidable impacts; and (4) a *public interest review* that balances the benefits of the project against its potential impacts.

E.2.1.1 Section 404 and RHA Section 10 Permitting Approach for the Water Conveyance Facility

USACE and DWR have developed an approach to permitting the construction, operation, and maintenance of a new water conveyance facility pursuant to Section 404 and RHA Section 10. The approach involves the following steps.

Preparation and Submission of an Application for Section 404 and RHA Section 10 Permits.

DWR will submit to USACE an application for Section 404 and RHA Section 10 permits covering all components of a new water conveyance facility, including its construction, operation and maintenance. The application will set out detailed information regarding the whole project, in accordance with 33 CFR 325.1(d), including information in support of a draft compensatory mitigation plan for unavoidable impacts on waters of the United States associated with the entire water conveyance project. The application will also identify project phases designed to align the timing of the issuance of Section 404 and RHA permits with the issuance of Section 408 permissions, where such permission is required for specific components of the conveyance project. Certain phases of the project will not trigger a requirement for permission under Section 408 and, for those phases, USACE may issue Section 404 and RHA Section 10 permits. DWR will determine the project phases for the conveyance facility with USACE based on such factors as the sequence of construction activities and the location of work sites in relation to facilities under USACE's Section 408 authority, including federal project levees and federal navigation channels.

Application Review. Once a complete application has been received, USACE will publish a public notice describing the conveyance facility and its phases as well as USACE's approach to making permit decisions on those phases pursuant to Section 404 and RHA Section 10, as well as Section 408 permissions where applicable. At this stage of the permitting process, USACE may initiate consultation under Section 106 of the NHPA and the ESA.

Preliminary LEDPA Concurrence. DWR will submit to USACE information regarding practicable alternatives for the entirety of the conveyance project, pursuant to the 404(b)(1) Guidelines. USACE will make a preliminary determination regarding the Least Environmentally Damaging Practicable Alternative (LEDPA) that meets the overall project purpose of the conveyance project. In its preliminary determination, USACE will acknowledge the project phases and the related timing of the issuance of Section 404 and RHA permits and Section 408 permissions.

Preliminary Concurrence on the Final Mitigation Plan. DWR will submit to USACE a final compensatory mitigation plan that describes the approach by which unavoidable impacts on waters of the United States related to the entire water conveyance project will be addressed. USACE will make a determination regarding the sufficiency of the plan, in accordance with 33 CFR 332.

Permit Decision Process. DWR will submit separate requests to USACE regarding the issuance of permits under Section 404/RHA Section 10 for each phase of the water conveyance project. For each of those phases, USACE will issue a separate public notice that includes detailed information regarding the activities that will occur as part of that phase. USACE will prepare a decision document (Environmental Assessment, Findings of No Significant Impact, or ROD) and will make any necessary additional findings regarding NEPA compliance, the 404(b)(1) analysis, public interest review, and Section 408 permission, if applicable. The processing of the permit application for each phase may occur concurrently or sequentially.

E.2.2 Impacts on Waters of the United States from the Construction of the Conveyance Facility

Alternative 4A includes the construction and operation of water conveyance facilities within, or requiring the unavoidable fill of, waters of the United States, resulting in the estimated fill of jurisdictional waters as described in Table E-1 below.

Table E-1. Approximate Impact Acreages Associated with the Construction of Alternative 4A

Habitat Type	Permanent Impact	Temporary Impacts Treated as Permanent ¹	Temporary Impact ²
Agricultural Ditch	45	17	0
Alkaline Wetland	20	0	0
Clifton Court Forebay	258	0	1,931
Conveyance Channel	8	3	0
Depression	29	7	0
Emergent Wetland	57	32	0
Forest	8	9	0
Lake	23	0	0
Scrub-Shrub	13	5	0
Seasonal Wetland	115	25	0
Tidal Channel	19	81	0
Vernal Pool	0.3	0	0
Total	595.3	179	1,931

¹ Temporary impacts treated as permanent are temporary impacts expected to last more than 1 year. These impact sites will eventually be restored to preproject conditions; however, due to the duration of effect, compensatory mitigation will be included for these areas.

² Temporary impacts are from dredging Clifton Court Forebay.

E.2.3 Conceptual Description of Compensatory Mitigation

The environmental consequences of the proposed federal action on wetlands and other aquatic resources are evaluated under the federal CWA (33 USC 1344) and the CWA regulations, policies and guidelines issued by USACE and EPA. The CWA prohibits the discharge of dredged or fill materials into wetlands, rivers, streams, and other jurisdictional waters unless a permit issued by USACE authorizes the discharge. Proposed discharges to jurisdictional waters are evaluated by USACE in accordance with federal regulations, which require every authorized discharge to adhere to a three-step process known as the *mitigation sequence*. Steps one and two seek to avoid and minimize the fill of jurisdictional waters to the extent practicable (40 CFR §230.10(a)). The third step requires appropriate and practicable compensatory mitigation for all unavoidable impacts on jurisdictional waters.

In 2008, USACE and EPA issued national regulations, known as the *Mitigation Rule*, governing compensatory mitigation for activities authorized by permits issued by USACE (33 CFR 325, 332), and in 2015, USACE's South Pacific Division issued *Regional Compensatory Mitigation and Monitoring Guidelines* (Final January 12, 2015)¹ (Division Guidelines) to supplement the national Mitigation Rule. Compensatory mitigation under the Mitigation Rule and Division Guidelines fulfill the long-standing national goal of replacing the loss of wetland and other aquatic resource acreages and functions, known as the *no net loss goal* (National Wetlands Mitigation Action Plan [December 24, 2002]). To achieve the no net loss goal, USACE and EPA have concluded that, where appropriate and practicable, compensatory mitigation "should provide, at a minimum, one for one functional replacement (i.e., no net loss of values), with an adequate margin of safety."¹ The long-term objective of the no net loss policy is to increase wetland acreages and functions nationally.

The Mitigation Rule defines compensatory mitigation as (1) restoring existing wetlands or reestablishing former wetlands; (2) creating new wetlands in upland areas; (3) enhancing the functional values of degraded wetlands; and (4) preserving wetlands restoration aquatic resources. Restoration is generally the preferable form of compensatory mitigation because the likelihood of success is greater than the likelihood of successful creation, while the impacts on potentially ecologically important uplands are less. Moreover, the potential gains in terms of aquatic resources functions are oftentimes greater with restoration than with enhancement and preservation (33 CFR 332.3(a)(2)). The Mitigation Rule and Division Guidelines stress the benefits of a watershed approach to compensatory mitigation, and compensatory mitigation generally should be located in the same watershed as the impact site, and where it is most likely to successfully replace lost functions and services (33 CFR 332.3; Division Guidelines Section 3.2).

E.2.3.1 Avoidance and Minimization Measures

The design of the project has included the avoidance of impacts on waters of the United States to the greatest extent practicable. Numerous iterations of footprint locations for each of the conveyance components have been evaluated in order to situate work areas in uplands where possible. Once construction begins, further measures will be taken, consistent with the avoidance and minimization measures (AMMs) described in Appendix 3.C of the Draft BDCP, to further avoid and minimize impacts on waters of the United States and special-status species. The AMMs will be implemented at

¹ Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army concerning the Determination of Mitigation under the Clean Water Act Section 404(b)(1) Guidelines, 55 Fed. Reg. 9210, 9212 (1990) (Mitigation MOA).

- 1 all phases of a project—from siting through design, construction, and operations and maintenance.
- 2 The AMMs that pertain specifically to waters of the United States are summarized in Table E-2.

1 **Table E-2. Summary of the Avoidance and Minimization Measures**

Number	Title	Summary
AMM1	Worker Awareness Training	Includes procedures and training requirements to educate construction personnel on the types of sensitive resources in the project area, the applicable environmental rules and regulations, and the measures required to avoid and minimize effects on these resources.
AMM2	Construction Best Management Practices and Monitoring	Standard practices and measures that will be implemented prior, during, and after construction to avoid or minimize effects of construction activities on sensitive resources (e.g., species, habitat), and monitoring protocols for verifying the protection provided by the implemented measures.
AMM3	Stormwater Pollution Prevention Plan	Includes measures that will be implemented to minimize pollutants in stormwater discharges during and after construction, and that will be incorporated into a stormwater pollution prevention plan to prevent water quality degradation related to pollutant delivery from project area runoff to receiving waters.
AMM4	Erosion and Sediment Control Plan	Includes measures that will be implemented for ground-disturbing activities to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities, and that will be incorporated into plans developed and implemented as part of the National Pollutant Discharge Elimination System permitting process for covered activities.
AMM5	Spill Prevention, Containment, and Countermeasure Plan	Includes measures to prevent and respond to spills of hazardous material that could affect waters of the United States, including navigable waters, as well as emergency notification procedures.
AMM6	Disposal and Reuse of Spoils, Reusable Tunnel Material, and Dredged Material	Includes measures for handling, storage, beneficial reuse, and disposal of excavation or dredge spoils and reusable tunnel material, including procedures for the chemical characterization of this material or the decant water to comply with permit requirements, and reducing potential effects on aquatic habitat, as well as specific measures to avoid and minimize effects on species in the areas where reusable tunnel material would be used or disposed.
AMM7	Barge Operations Plan	Includes measures to avoid or minimize effects on aquatic species and habitat related to barge operations, by establishing specific protocols for the operation of all project-related vessels at the construction and/or barge landing sites. Also includes monitoring protocols to verify compliance with the plan and procedures for contingency plans.
AMM10	Restoration of Temporarily Affected Natural Communities	Restore and monitor natural communities in the Plan Area that are temporarily affected by construction activities. Measures will be incorporated into restoration and monitoring plans and will include methods for stockpiling and storing topsoil, restoring soil conditions, and revegetating disturbed areas; schedules for monitoring and maintenance; strategies for adaptive management; reporting requirements; and success criteria.
AMM12	Vernal Pool Crustaceans	Includes provisions to require project design to minimize indirect effects on vernal pool habitat, avoid effects on core recovery areas, minimize ground disturbing activities or alterations to hydrology, conduct protocol-level surveys, and redesign the project to ensure that habitat loss is minimized where practicable.
AMM30	Transmission Line Design and Alignment Guidelines	Design the alignment of proposed transmission lines to minimize impacts on sensitive terrestrial and aquatic habitats when siting poles and towers. Restore disturbed areas to preconstruction conditions.
AMM34	Construction Site Security	Provide all security personnel with environmental training similar to that of onsite construction workers, so that they understand the environmental conditions and issues associated with the various areas for which they are responsible at a given time.
AMM36	Notification of Activities in Waterways	Before in-water construction or maintenance activities begin, notify appropriate agency representatives when these activities could affect water quality or aquatic species.

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Minimization and avoidance of impacts on aquatic species and their habitat and other species that utilize aquatic habitats (e.g., California tiger salamander, giant garter snake, California red-legged frog, western pond turtle, riparian woodrat, riparian brush rabbit, Suisun shrew, and salt marsh harvest mouse) will also result in further avoidance and minimization of impacts on waters of the United States.

E.2.3.2 Wetland Functions

Unavoidable impacts on waters of the United States will be mitigated such that the loss of acreage and functions due to construction activities shall be fully compensated. Wetland functions, defined as a process or series of processes that take place within a wetland, include the storage of water, transformation of nutrients, growth of living matter, and diversity of wetland plants. These functions have value for the wetland itself, for surrounding ecosystems, and for people. Functions can be grouped broadly as habitat, hydrologic, or water quality. Not all wetlands perform all functions nor do they perform all functions equally well. The location and size of a wetland may determine what functions it performs. For example, the geographic location may determine its habitat functions, and the location of a wetland within a watershed may determine its hydrologic or water quality functions. Many factors determine how well a wetland will perform these functions: climatic conditions, quantity and quality of water entering the wetland, and disturbances or alteration within the wetland or the surrounding ecosystem. Wetland disturbances may be the result of natural conditions, such as an extended drought, or human activities, such as land clearing, dredging, or the introduction of nonnative species. Wetlands are among the most productive habitats in the world, providing food, water, and shelter for fish, shellfish, birds, and mammals, and serving as a breeding ground and nursery for numerous species. Many endangered plant and animal species are dependent on wetland habitats for their survival. Hydrologic functions are those related to the quantity of water that enters, is stored in, or leaves a wetland. These functions include such factors as the reduction of flow velocity, the role of wetlands as groundwater recharge or discharge areas, and the influence of wetlands on atmospheric processes. Water quality functions include the trapping of sediment, pollution control, and the biochemical processes that take place as water enters, is stored in, or leaves a wetland.

A functional assessment of wetlands proposed for fill will be conducted during the development of the Conceptual Mitigation Plan as part of the CWA permitting process. The results of this assessment will be compared to the expected functions at the proposed mitigation site(s) such that it can be confirmed that the compensatory mitigation will in fact accomplish full functional replacement of affected wetlands.

E.2.3.3 Compensatory Mitigation

Aside from the habitat that would be created through implementation of the environmental commitments, compensatory mitigation would be proposed to offset the impacts of the physical construction of the project. In some cases, complementary habitat creation might serve dual purposes (e.g., created emergent marsh might function both as habitat for delta smelt and as compensatory mitigation for physical impacts on emergent marsh habitat). However, all mitigation proposed as compensatory mitigation would be subject to specific success criteria, success monitoring, long-term preservation, and long-term maintenance and monitoring pursuant to the requirements of the Mitigation Rule.

All compensatory mitigation shall fully replace lost function through the mechanisms discussed below, which will result in restoration and/or creation of habitat with at least as much function and value as those of the affected habitat. In some cases, the mitigation habitat will afford significantly higher function and value than that of affected habitat.

Compensation ratios, which are developed by USACE, are driven by type, condition, and location of replacement habitat as compared to type, condition, and location of affected habitat. Compensatory mitigation usually includes restoration, creation, or rehabilitation of aquatic habitat. USACE does not typically accept preservation as the only form of mitigation; use of preservation as mitigation typically requires a very high ratio of replacement to impact. It is anticipated that ratios will be a minimum of 1:1, depending on the factors listed above.

Compensatory mitigation will consist of restoration, creation, and/or rehabilitation of aquatic habitat. Typically, affected habitat will be replaced in kind, although impacts on some habitat types such as agricultural ditches, conveyance channels, and Clifton Court Forebay will be mitigated out-of-kind with higher functioning habitat types such as riparian wetland, marsh, and/or seasonal wetland. Compensatory mitigation shall be accomplished by one or a combination of the following methods.

- Purchase credits for restored/created/rehabilitated habitat at an approved wetland mitigation bank.
- Onsite (adjacent to the project footprint) restoration or rehabilitation of wetlands converted to uplands through past land use activities (such as agriculture) or functionally degraded by such activities.
- Onsite (adjacent to the project footprint) creation of aquatic habitat.
- Offsite (within the Delta) restoration or rehabilitation of wetlands converted to uplands through past land use activities (such as agriculture) or functionally degraded by such activities.
- Offsite (within the Delta) creation of aquatic habitat.
- Payment into USACE's Fee-in-Lieu program.

Purchase of Credits or Payment into Fee-in-Lieu Program

It is envisioned that purchase of bank credits and/or payment into a fee-in-lieu program will be utilized for habitat types that would be difficult to restore or create within the Delta. An example is vernal pool habitat, which requires an intact hardpan or other impervious layer and very specific soil types. Banks utilized for compensatory mitigation would be agency approved and have a service area that includes the area of the affected habitat type. The fee-in-lieu program would be that of USACE. It is anticipated that only a small amount of compensatory mitigation will fall into these categories.

Onsite Restoration, Rehabilitation, and/or Creation

Much of the Delta consists of degraded or converted habitat that is more or less functioning as upland. Opportunities will be sought where onsite restoration, rehabilitation, and/or creation could take place immediately adjacent to the project footprint. It is anticipated that some of the compensatory mitigation will fall into this category.

Offsite Restoration, Rehabilitation, and/or Creation

There exists, within the immediate vicinity of the project area, Delta land that has been subject to agricultural practices or other land uses that have degraded or even converted wetlands that existed historically. Sites within the Delta will be evaluated for their restoration, rehabilitation, and/or creation potential. It is anticipated that most of the compensatory mitigation will fall into this category.

Impacts Resulting from the Construction of Compensatory Mitigation

Construction of compensatory mitigation involving restoration, rehabilitation, and/or creation of aquatic habitat will result in relatively minor environmental impacts. Expected impacts include noise and air quality during construction, the conversion of upland to aquatic habitat, and potential changes to existing channel hydraulics where levees will be breeched or lowered to create weirs.

E.3 River and Harbors Act Section 10

E.3.1 Federal Rivers and Harbors Act of 1899 (33 USC 403 et seq.) Section 10 Overview and Process

Section 10 of the RHA) requires authorization from the Secretary of the Army, acting through USACE, for the construction of any structure in or over any navigable water of the United States (33 USC 403 et seq.; 33 CFR 322 et seq.). Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body (33 CFR 322.3[a]). The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable water of the United States, and applies to all structures, from the smallest floating dock to the largest commercial undertaking (33 CFR 322.2 [b]).

To construct any structure over or in a navigable waterway or perform any activity that would obstruct a navigable waterway requires a permit from USACE pursuant to RHA Section 10—a Section 10 permit. Authorization to conduct activities generally prohibited by the RHA can take the form of a Nationwide, a Regional General, or an Individual Permit. Certain classes of activities that have only minimal effects are authorized by USACE on a regional basis. An individual Section 10 permit is required for the proposed activity if it is not covered by a Nationwide or Regional General Permit (33 CFR 322.3).

The process for obtaining an RHA permit is similar to the process for obtaining a Section 404 Individual Permit. Substantively, USACE evaluates applications for Individual RHA Permits for compliance with Section 404(b)(1) Guidelines (40 CFR 230) and USACE regulations (33 CFR 322 et seq.), and compliance with the 404 permitting criteria will cover the substantive requirements of the RHA permitting process.

E.3.2 Summary and References to Information and Analysis Contained in Draft EIR/EIS and RDEIR/SDEIS

Potential navigation effects are discussed throughout the Draft EIR/EIS and RDEIR/SEIS in several chapters. Please refer to the impact discussions listed below for additional information.

All Alternatives

Draft EIR/EIS Chapter 3, *Description of Alternatives*, Section 3.6.1, *Water Conveyance Facility Components*, provides a description of water conveyance facility components, including intakes, operable barriers, barge fleeting facilities and operation, and forebays, and discusses the potential impacts of these components on navigation. Notably, this section concludes that the Sacramento River would remain navigable during construction of the intakes under each of the various alternatives.

Alternative 4A

Impacts associated with Alternative 4A are analyzed in RDEIR/SEIS Section 4, *New Alternatives: Alternatives 4A, 2D, and 5A*. This section includes analyses of the potential effects of Alternative 4A on navigation as it relates to recreation and transportation.

Section 4.3.11, Recreation

Impact REC-3: Result in Long-Term Reduction of Recreational Navigation Opportunities as a Result of Constructing the Proposed Water Conveyance Facilities

Impact REC-7: Result in Long-Term Reduction in Water-Based Recreation Opportunities as a Result of Maintenance of the Proposed Water Conveyance Facilities

Impact REC-10: Result in Long-Term Reduction in Boating-Related Recreation Opportunities as a Result of Implementing Environmental Commitments 3–4, 6–12, and 15–16

Section 4.3.15, Transportation

Impact TRANS-4: Disruption of Marine Traffic during Construction

Impact TRANS-12: Potential Effects on Navigation from Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation from Construction of Intakes

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation from Construction of Barge Facilities

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation from Construction of Clifton Court Forebay

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation from Operation of Intakes

Impact TRANS-18: Potential Effects on Navigation from Construction and Operations of Head of Old River Barrier

Impact TRANS-19: Potential Cumulative Effects on Navigation from Construction and Operations of Water Conveyance Facilities

E.3.3 Supplemental Description of Potential Effects on Navigation for Alternative 4A

E.3.3.1 Facilities Description

Under Alternative 4A, water conveyance facilities would be constructed and maintained identically to those proposed and analyzed under Alternative 4 (incorporating the modifications described in Section 3, *Alternative 4: Conveyance Facility Modifications*). Water would primarily be conveyed from the north Delta to the south Delta through pipelines/tunnels. Water would be diverted from the Sacramento River through three fish-screened intakes (Intakes 2, 3, and 5) on the east bank of the Sacramento River between Clarksburg and Courtland. Water would travel from the intakes to a sedimentation basin before reaching the tunnels. From the intakes water would flow into an initial single-bore tunnel, which would lead to an intermediate forebay on Glannvale Tract. From the southern end of this forebay, water would pass through an outlet structure into a dual-bore tunnel where it would flow by gravity to the south Delta. Water would then reach pumping plants northeast of the Clifton Court Forebay, where it would be pumped into the north cell of the expanded Clifton Court Forebay from the tunnels. The forebay would be dredged and redesigned to provide an area isolating water flowing from the new north Delta facilities from water diverted from south Delta channels.

A new pumping facility would be constructed northeast of the north cell of the expanded Clifton Court Forebay, along with control structures to regulate the relative quantities of water flowing from the north Delta and the south Delta to the Banks and Jones Pumping Plants. Alternative 4A would entail the continued use of the State Water Project (SWP)/Central Valley Project (CVP) south Delta export facilities.

All aspects of water conveyance facility design, construction, and maintenance would be identical to those described for Alternative 4 in the revised text in Chapter 3, Sections 3.4, 3.5.9, and 3.6.1 and Appendix 3C, in Appendix A, *Revisions to the Draft EIR/EIS*.

A map and a schematic diagram depicting the conveyance facilities associated with Alternative 4A are provided in Mapbook Figure 3-4 and Figure 3-10. As noted previously, water conveyance facilities would be constructed and maintained identically to those proposed and analyzed under Alternative 4.

E.3.3.2 Potential Effects on Navigation

This analysis is based on the following documents: *Preliminary Estimates of Sediment Load at Proposed Delta Habitat Conservation and Conveyance Program (DHCCP) Intakes* (June 28, 2012; Revision 2; California Department of Water Resources); *DHCCP Intake Study: Preferred Intake Technology* (January 2011; California Department of Water Resources); *Technical Memorandum –*

Initial Intake Hydraulic Analyses (April 15, 2010; California Department of Water Resources). This analysis is also based on, and is meant to supplement, information provided in the Draft EIR/EIS and RDEIR/SEIR, including the sections and pages cited above under Section A, *Summary and References to Information and Analysis Contained in Draft EIR/EIS*.

Potential Effects on Surface Elevations Caused by Intakes

During Construction

Construction for Intakes 2, 3, and 5 would be accomplished using coffer dams at each location. Cofferdams would isolate each construction area from the Sacramento River and would be used to dewater the construction area. Intakes and screens have been designed and situated on bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes would occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 foot at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

During Operation

The hydraulic modeling scenario for this analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative. Alternatives with fewer intakes and/or lower diversion capacity, such as Alternative 4A (three intakes and 9,000 cubic feet per second maximum diversion capacity), would have lesser effects on surface water elevations. With respect to Alternative 4A, operation of Intakes 2, 3, and 4 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. *Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8. This river depth has occurred historically and has been adequate to support navigation along the

Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 feet, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 4A, even assuming a maximum lowering of 0.7 feet, would not likely expose any currently unexposed natural or man-made features that would affect or impede. There would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure that pumping velocities have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly affected (either locally or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because they do not involve a physical change in the environment, effects on navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Potential Effects on Navigation Caused by Sedimentation

Facility Construction

Intakes

Construction for Intakes 2, 3, and 5 will be accomplished using coffer dams at each location. Cofferdams will isolate each construction area from the Sacramento River and will be used to dewater the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments*, including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to AMM4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as

proximity to surface water, erosion potential, drainage, and other relevant factors. The plans will comply with all the necessary state requirements regarding erosion control and will entail implementation of BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because they do not involve a physical change in the environment, effects on navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Barge Facilities

Under Alternative 4A, five temporary barge landings would be constructed at locations adjacent to construction work areas for the delivery of construction materials. Each of the five proposed barge landings would include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials, as well as vehicles and other machinery. Construction of the five barge landings would involve piles at each landing.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 4A, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3 B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built using piles and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the environmental commitments, impacts on sedimentation through construction-related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction and operation of the barge facilities under Alternative 4A would not have an adverse effect on navigation.

CEQA Conclusion: Because they do not involve a physical change in the environment, effects on navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Clifton Court Forebay

Clifton Court Forebay would be dredged and redesigned to provide an area where water flowing from the new north Delta facilities would be isolated from water diverted from south Delta channels. While Clifton Court Forebay is a navigable water, use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: Since Clifton Court Forebay is not open to navigation, there would be no effect.

CEQA Conclusion: No impact.

During Operations

Intakes

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment “starved” for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed; this bed load depends on several factors, including particle size, particle density, and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion, and sediment loading. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to resuspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because they do not involve a physical change in the environment, effects on navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes would not have a significant impact on navigation.

Potential Navigation Impacts from Construction and Operations of Head of Old River Barrier

Alternative 4A proposes work at the Head of Old River including the construction of fish and flow control gates as well as a small boat lock to allow recreational boat passage. An analysis of potential impacts of this work on navigation was completed in 2005 by Jones & Stokes (*South Delta Improvements Program Vol I: Environmental Impact Statement/Environmental Impact Report*. Draft. October. [J&S 020533.02.] State Clearinghouse #2002092065. Sacramento, CA) (SDIP EIS/EIR). The SDIP EIS/EIR analyzed whether the proposed barrier/gates facility and locks would cause a change in south Delta flows or water level, river flows, or surface water elevations that would result in substantial changes to existing recreational or commercial boating activity and opportunities.

The analysis addressed changes in access to Delta waterways by boats and other vessels during construction and operation of the gates, during channel dredging activities, and attributable to changes in water levels/depths. Most of the waterways in the immediate project vicinity are public waterways navigable by recreational craft, such as rowboats, large houseboats, and cabin cruisers. These waterways are also navigable by smaller commercial vessels, such as towing and salvage vessels, clamshell dredges, dredges for repair and maintenance of levees and channels, and pile-driving vessels. Boat access points in the project area include River's End Marina, located on the south side of the Delta Mendota Canal (DMC), at the confluence with Old River; Tracy Oasis Marina Resort, located on the east side of Tracy Boulevard and the north side of Old River; and possibly Heinbockle Harbor, located at Tracy Boulevard, on the south side of Grant Line/Fabian and Bell Canal.

According to a California Department of Parks and Recreation (DPR) survey, minimal boat launching and use occurs in the project area. The channels within the project area are too small to accommodate large commercial vessels, and because the channels are also part of an existing temporary barriers project, larger vessels cannot use these channels when the barriers are in place. A boat lock at the proposed facility would ensure boat access upstream of the gate regardless of gate operations. In this regard, upstream boat access could improve over current conditions. Additionally, from June 16 through September 30, the gates would be open and no boat lock operations would be necessary.

With respect to both recreational and commercial navigation, and based on analysis provided in the SDIP EIS/EIR, boat access impacts during facility construction will be less than significant (pages 5.8-14, 5.8-18, 5.8-21), impacts on navigation caused by water level changes during barrier operation would be less than significant (pages 5.8-15, 5.8-19, 5.8-22), impact on nonrecreational boaters due to temporary dredging operation would be less than significant (pages 5.8-16, 5.8-19, 5.8-22), and impacts on recreation as a result of constructing and operating any of the alternatives would not be significant (page 7.4-1).

Construction of the operable barrier could result in increased sedimentation near the gates. Maintenance dredging around the gate would be necessary to clear out sediment deposits. Dredging around the gates would be conducted using a sealed clamshell dredge. Depending on the rate of sedimentation, maintenance would occur every 3–5 years. A formal dredging plan with further details on specific maintenance dredging activities would be developed prior to dredging activities. Guidelines related to dredging activities, including compliance with in-water work windows and turbidity standards, are described further in Appendix 3B, *Environmental Commitments*, under *Disposal and Reuse of Spoils, Reusable Tunnel Material (RTM), and Dredged Material*. These activities would ensure that sedimentation would not result in an adverse impact on navigation.

NEPA Effect: With respect to construction and operations of the Head of Old River Barrier, Alternative 4A would have no adverse effect on either commercial or recreational navigation activities.

CEQA Conclusion: Because they do not involve a physical change in the environment, effects on navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, construction and operations of the Head of Old River barrier would not have a significant impact on navigation.

Potential Cumulative Effects on Navigation

As explained above and with respect to the construction and operation of these facilities, Alternative 4A would not result in adverse effects on navigation as a result of water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation because the minimal effects of these project elements on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 4A facilities.

NEPA Effect: Alternative 4A in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

CEQA Conclusion: Because they do not involve a physical change in the environment, effects on navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 4A in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

E.4 Rivers and Harbors Act Section 14 (Section 408)

E.4.1 Federal Rivers and Harbors Act of 1899 (33 USC 408) Section 14 Overview and Process

RHA Section 14 (33 USC 408) requires permission from the Secretary of the Army, acting through USACE, to alter an existing USACE civil works project. To grant permission under Section 408, USACE must determine that the proposed alteration would not impair the usefulness of the USACE project, and would not be injurious to the public interest. Such a determination is generally referred to as *Section 408 permission*. To construct a new water conveyance facility and associated mitigation as proposed, the USACE facilities potentially altered requiring Section 408 permission are the Sacramento River Flood Control Project (SRFCP), the San Joaquin River and Tributaries Project (SJRTTP), and the Stockton Deep Water Ship Channel (Stockton DWSC).

The process for securing Section 408 permission is set forth in the Department of the Army, U.S. Army Corps of Engineers, Circular No. 1165-2-216 (31 July 2014) and involves (1) precoordination; (2) written request; (3) required documentation (including environmental compliance, if applicable); (4) district-led Agency Technical Review (ATR); (5) Summary of Findings; (6) division review; (7) headquarters review; (8) notification; and (9) post-permission oversight. Not all the steps will apply to every Section 408 request. In simple cases, steps may be combined or be undertaken concurrently.

E.4.1.1 Section 408 Permission Approach for the Water Conveyance Facility

Parallel and coordinated with the Section 404 and RHA Section 10 process, USACE and DWR have developed an approach for permission for the construction, operation, and maintenance of a new water conveyance facility pursuant to Section 408. The approach involves the following steps.

Precoordination. DWR has engaged USACE in precoordination, which has included the following.

- Meetings and informal correspondence regarding project purpose and alternatives, other related programs, potentially affected facilities under USACE's authority, and a preview of the permission process.
- USACE review of and comment on administrative and public draft environmental documentation.
- Discussion of the relationship between Section 408 and Section 404 and RHA permits, as mentioned above (in *Section 404 and RHA Section 10 Permitting Approach for the Water Conveyance Facility*), as a phased approach to align the timing of the issuance of Section 404 and RHA permits with the issuance of Section 408 permissions.
- Development of a Letter of Intent from the State of California to initiate the Section 408 process with USACE. This letter is a precursor to the formal Section 408 permission request letter that will come later in the process once more detailed engineering drawings are developed for the relevant project elements. The letters are developed jointly between DWR and the Central Valley Flood Protection Board (CVFPB), the official nonfederal sponsor. CVFPB is responsible for the operation and maintenance of the federal flood management projects (SRFCP and SJRTP). There is a parallel, corollary process between the Port of Stockton and USACE, recognizing the Port of Stockton's role as the nonfederal sponsor for the Stockton DWSC.
- Development of the review process for each Section 408 permission phase (e.g., need for Safety Assurance Review).

Preparation and Submission of Formal Request Letters. As described above, the precoordination task includes development of an approach between DWR and USACE to determine permit phases pursuant to Section 404, RHA Section 10, and Section 408 permission. Upon development of detailed engineering drawings (to the approximately 65% design level, according to USACE guidance), DWR, acting jointly with CVFPB, will submit a formal request letter by phase to USACE for potential alterations to the SRFCP and SJRTP. In addition to the engineering drawings, the formal request letter will include H&H system performance analysis sufficient to analyze and support the engineering drawings. DWR will similarly coordinate with the Port of Stockton for a formal request letter to USACE for potential alterations to the Stockton DWSC (if required; to be determined through precoordination).

Permission Decision Process. The Section 408 permission process will be similar to that described above for Section 404/RHA Section 10, considering the steps specific to Section 408 regarding reviews (e.g., Safety Assurance Review, Agency Technical Review, and USACE Division and Headquarters involvement) to be determined for each phase through the precoordination process.

E.4.2 Flood Risk Analysis

The purpose of review under Section 408 is to ensure that an action would not impair the usefulness of a federal civil work under USACE's authority, and would not be injurious to the public interest. Specifically related to this project, the primary issue is to maintain the integrity of the SRFCP and SJRTP and their function for flood risk reduction. Section 408 review provides that alteration of any one part of the system would not substantially increase flood risk.

The major elements of the requester's preferred alternative for a new water conveyance facility that may trigger Section 408 permission specific to federal civil works for flood risk reduction are listed below.

- Three new water intake structures on the east levee of the Sacramento River, a federal project levee (part of the SRFCP), and associated channel margin habitat enhancement to mitigate habitat effects resulting from the intakes.
- Head of Old River Barrier, an in-channel structure placed between federal project levees (part of the SJRFCP).
- Other environmental commitments that affect federal project levees or channels.

A detailed hydraulic study per USACE's standards for Section 408 NEPA analysis is not available for this environmental document. The informational requirements under the Section 408 process necessarily includes a detailed level of engineering design, as well as a detailed level of analysis related to effects on USACE's civil works projects and indirect hydraulic effects. The information contained in the current CEQA/NEPA documents will not fully meet this level of detail and additional informational submittals and analysis may be necessary. As a result of these submittals, prior to final 408 permission, additional NEPA compliance by USACE may be required.

Analysis conducted to date for flood risk is described in the Surface Water section of the environmental document, including potential impacts listed below.

- SW-2, Changes in Sacramento and San Joaquin River flood flows.
- SW-4, Substantially alter the existing drainage pattern or substantially increase the rate or amount of surface runoff in a manner that would result in flooding during construction of conveyance facilities.
- SW-5, Substantially alter the existing drainage pattern or substantially increase the rate or amount of surface runoff in a manner that would result in flooding during construction of habitat restoration area facilities.
- SW-6, Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- SW-7, Expose people or structures to a significant risk of loss, injury, or death involving flooding due to the construction of new conveyance facilities.
- SW-8, Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding due to habitat restoration.
- SW-9, Place within a 1/100 annual chance flood hazard area structures which would impede or redirect flood flows, or be subject to inundation by mudflow.

As described in the Surface Water section, these impacts are generally less than significant for the alternatives and are all less than significant with mitigation.

It is anticipated that detailed flood risk analysis will be included in a supplemental environmental document to support USACE's decisionmaking for Section 408 permission, including hydraulic modeling results appended to the environmental document for full public disclosure and review. The modeling parameters per USACE's standards are detailed below.

- 1 • **Project Features to be Analyzed:** The hydraulic study will analyze all proposed project
2 features (those listed above and all other features including those that do not affect federal
3 project levees but that may affect hydrology and hydraulics). The analysis will include
4 temporary facilities (such as coffer dams) and permanent facilities to capture impacts both
5 during and after construction (during project operation). Locations for channel margin habitat
6 enhancement yet to be identified that may affect federal project levees will be disclosed and
7 analyzed as part of the supplemental environmental document for Section 408 permission.
- 8 • **Events to be Analyzed:** The hydraulic study will analyze a full range of flood events including
9 events with 1/10, 1/100, 1/200, and 1/500 recurrence, as well as the 200-year event plus 3 feet
10 (per State of California standards prescribed under Senate Bill 5) and the system design event
11 (the 1957 profile).
- 12 • **Hydraulic Characteristics and Effects to be Analyzed:** Changes in velocity, water surface
13 elevation, flowage distribution, scour, sedimentation, and any up- or downstream effects will be
14 analyzed.
- 15 • **Boundary Conditions:** The geographic scope of the study will extend to the point of no impact,
16 meaning no detectable change in hydraulics.

17 Based on the hydraulic study, the supplemental environmental document for Section 408
18 permission will discuss more detail regarding potential for transfer of risk, including impacts
19 associated with localized levee raising and strengthening and effects on adjacent areas.

20 E.5 NHPA Section 106

21 E.5.1 Overview

22 The National Historic Preservation Act (NHPA), 16 USC 470a–470w-6, is the primary federal law
23 governing the preservation of cultural and historic resources in the United States. The law
24 establishes a national preservation program and a system of procedural protections which
25 encourage the identification and protection of cultural and historic resources of national, state,
26 tribal and local significance. Primary components of the act are listed below.

- 27 • Articulation of a national policy governing the protection of historic and cultural resources.
- 28 • Establishment of a comprehensive program for identifying historic and cultural resources for
29 listing in the National Register of Historic Places.
- 30 • Creation of a federal-state/tribal-local partnership for implementing programs established by
31 the act.
- 32 • Requirement that federal agencies take into consideration actions that could adversely affect
33 historic properties listed or eligible for listing on the National Register of Historic Places, known
34 as the Section 106 Review Process.
- 35 • Establishment of the Advisory Council on Historic Preservation, which oversees federal agency
36 responsibilities governing the Section 106 Review Process.
- 37 • Placement of specific stewardship responsibilities on federal agencies for historic properties
38 owned or within their control (Section 110 of the NHPA).

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP. Revised regulations, *Protection of Historic Properties* (36 CFR Part 800), became effective August 5, 2004, and are summarized below.

The responsible federal agency first determines whether it has an undertaking that is a type of activity that could affect historic properties. Historic properties are properties that are included in the National Register of Historic Places (NRHP) or that meet the criteria for the NRHP. If so, it must identify the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO) to consult with during the process. It should also plan to involve the public, and identify other potential consulting parties. If it determines that it has no undertaking, or that its undertaking is a type of activity that has no potential to affect historic properties, the agency has no further Section 106 obligations.

E.5.2 Programmatic Agreement

USACE, as the federal lead agency for CWA Section 404 permitting the water conveyance facility, is responsible for Section 106 compliance. When a project is complex, such that the normal Section 106 review process is not appropriate, the Section 106 implementing regulations (36 CFR 800.14[b]) allow for the development of a programmatic agreement (PA) to ensure Section 106 compliance. Relative to the currently proposed conveyance facility, preparation of a PA is applicable when effects on historic properties cannot be fully determined prior to approval of an undertaking (36 CFR 800.14[b][1][ii]), or when nonfederal parties are delegated major decision-making responsibilities (36 CFR 800.14[b][1][iii]).

USACE, in collaboration with DWR, is developing a draft Section 106 PA for the conveyance facility. The PA provides for the identification of historic properties within the Area of Potential Effect (APE) of the selected project alternative prior to construction initiation, and the development of avoidance, protection, or mitigation measures for those historic properties that could be adversely affected by the project. Treatment plans will be prepared to address impacts on NRHP-eligible archaeological, built environment, and Traditional Cultural Property (TCP) resources within the APE. The PA details how many of the day-to-day responsibilities for Section 106 compliance are delegated to DWR by USACE.

E.5.2.1 Tribal Consultation

An important element of the PA involves consultation with Native American tribes and members of the public who have a demonstrated interest in the undertaking, as required under 36 CFR 800.2(c)(2) and 36 CFR 800.2(d), respectively. Native American tribes are those tribal entities who are federally recognized (36 CFR 800.16[m]). Native American tribes who have not received federal recognition, or individuals of Native American descent who are not affiliated with any tribal organization, are considered members of the interested public, as are other entities such as historical societies, local governments, or businesses and individuals. The PA ensures that USACE will fully involve federally recognized tribes at a government-to-government level throughout the Section 106 process. Similarly, the PA delegates responsibility for consultation with tribes and individuals without federal recognition to DWR.

Participation in the Section 106 process by Native American tribes or individuals with an ancestral affiliation with the project area is described in the PA. Native Americans will be invited to participate in the development and implementation of the terms of the PA, including inventory reports, evaluation plans and reports, and during the resolution of adverse effects through the development of treatment plans for those resources within the APE that are either exclusively or partially affiliated with prehistoric or ethnographic resources. Participation may take place during public meetings, at meetings organized only for Native American tribes as a group, or at meetings with single tribes or individuals; meetings may be informal or may be identified as formal government-to-government consultations, depending on the participants involved. Native American tribes, both federally recognized and those without federal recognition, and individuals with a demonstrated ancestral tie to the project area will be invited to be concurring parties to the PA. However, these entities are not required to be concurring parties in order to participate in the processes described in the PA, and they may request to become concurring parties at any time during the process.

E.6 Executive Order 11988

Executive Order (EO) 11988 (May 24, 1977) requires a federal agency, when taking an action, to avoid to the extent possible, short- and long-term adverse effects associated with the occupancy and modification of the base floodplain and avoidance of direct and indirect support of base floodplain development whenever there is a reasonable and feasible alternative. If the only reasonable and feasible alternative involves siting in a floodplain, the agency must minimize potential harm to or in the floodplain and explain why the action is proposed in the floodplain.

In February 1978, the Water Resources Council issued Floodplain Management Guidelines for Implementing Executive Order 11988. These guidelines provide analysis of the executive order, definitions of key terms, and an eight-step decision-making process for carrying out the executive order's directives. The process contained in the Water Resources Council guidelines incorporates the basic requirements of the executive order. Briefly, the eight-step process is outlined below, followed by discussion of the project's application of the process to demonstrate compliance.

Step 1: Determine whether a proposed action is in the base floodplain (100-year floodplain, or 1% chance flood, or 500-year floodplain, or 0.2% chance flood, if the action falls under the definition of critical, discussed separately below). The project inherently requires placement within the base floodplain as the purpose is to construct and operate facilities and/or improvements for the movement of water entering the Delta from the Sacramento Valley watershed to the existing SWP and CVP pumping plants located in the south Delta. The project area for the preferred alternative includes locations on and adjacent to the Sacramento–San Joaquin Delta, Sacramento River, San Joaquin River, and Old River. These locations are within the base floodplain.

Critical Action. The Water Resources Council Floodplain Management Guidelines present the concept of a critical action. While there is no precise definition of critical action, the guidelines (under Part II, Decision-Making Process, Step 1C) outline the parameters and describe a critical action as “any activity for which even a slight chance of flooding is too great.” This definition is intended to apply to those federal actions that would involve facilities or infrastructure that are sensitive to flooding and for which the consequences of flooding would be severe in terms of ability to provide essential community services or to reduce risks to life and welfare (as described in the criteria above).

The proposed new water conveyance facilities, which would become part of the SWP, would be considered critical due to their function of water supply for much of California, and would be within the 500-year floodplain, as are the existing SWP facilities in the region. Specifically, Clifton Court Forebay, Skinner Fish Facility, and the Banks Pumping Plant, to which the new water conveyance facilities would connect, are in the 100-year floodplain. Therefore, for purposes of the analysis required under EO 11988, it is assumed that the project is considered a critical action because the project would be associated with critical facilities already located in the floodplain. However, it should again be noted that the new water conveyance facilities would be built beyond the 200-year level of performance.

Step 2: Provide public review. The CEQA/NEPA process provides for public disclosure; the EIR/EIS is one instrument for public review of the project. DWR and the federal lead agencies have established a multimedia outreach program to allow for public review and disclosure of the project. The approach to the outreach program has been to exceed the guidelines and requirements of CEQA and NEPA for public noticing to ensure that the affected community and other interested stakeholders are informed, engaged, and involved through an accessible, open, and transparent process. Actions conducted as part of the outreach program are listed in Chapter 32, *Public Involvement, Consultation, and Coordination*, of the Draft EIR/EIS.

Step 3: Identify and evaluate reasonable and feasible alternatives to locating in the base floodplain. The EIR/EIS considered a wide range of alternatives. The project purpose required the placement of many facilities within the base floodplain; however, the new intake facilities would be designed and constructed to a minimum 200-year level of performance. Underground features (i.e., tunnels) would be insensitive to surface water hydrology.

Critical Action. There are no practicable alternatives to the proposed alteration being situated within the critical action floodplain; however, the new intake facilities would be designed and constructed to a minimum 200-year level of performance.

Step 4: Identify the effects (beneficial and adverse) of the proposed action. The proposed action would not induce development within the base floodplain and would not reduce the natural floodplain within the study area. The natural floodplain has been greatly reduced within the study area by the manner in which the existing levee system was constructed. The existing alignment of the levees reduces the beneficial values of water resources (natural moderation of floods, water quality maintenance, and groundwater recharge); living resource values (fish, wildlife, and plant resources); and social resource values (open space, natural beauty, scientific study, and outdoor education and recreation). Some minimal riparian habitat will be affected by the proposed action as described in Section E.2.2, but these effects will be mitigated beyond replacement of existing habitat to include channel margin enhancement at greater function and value than baseline conditions (described in Section E.2.3.). Aquatic and terrestrial species and populations in the project area are intended and expected to benefit from the proposed action.

Step 5: Minimize threats to life and property and to natural and beneficial floodplain values. Restore and preserve natural and beneficial floodplain values. The action is not expected to induce development within the base floodplain. The portions of levees affected by the new water conveyance facilities would be constructed beyond the 200-year level of performance and would therefore maintain or improve minimization of threats to life and property. The project includes mitigation per state and federal regulations to restore and preserve natural and beneficial floodplain habitat (and therefore natural and beneficial floodplain values). See Section E.2.3 for further

discussion of compensatory mitigation. Specific to floodplain values, the proposed action's environmental commitments include enhancement of channel margin habitat that will expand and restore the natural floodplain.

Step 6: Reevaluate alternatives. This EIR/EIS is part of a step-wise evaluation process to refine the alternatives through public review as well as through resource and regulatory agency input in consultation for compliance with ESA, the California Endangered Species Act (CESA), and other project authorizations. The alternatives have been evaluated at the planning level for initial screening (Chapter 3) and for reevaluation through project-level analysis. The recommendations and project refinements resulting from these reviews have been incorporated into the alternative descriptions and environmental commitments (Chapter 3), environmental effects analyses, and mitigation measures (Chapters 5 through 30). To date, this level of screening analysis has demonstrated that the requestor's preferred alternative (Alternative 4A) best meets the project purpose and need.

Critical Action. The new water conveyance facility and levee sections immediately associated with the intake structures will be designed and constructed to exceed the 1/200 annual chance event. Performance to the 1/500 year annual chance event is not feasible because the project area and the existing facilities to which the proposed project will connect are predominantly located in the base floodplain.

Step 7: Issue findings and a public explanation. The public will have an opportunity to comment on this analysis and determination when the SDEIS/RDEIR is released for public review. It is the conclusion of this analysis that the proposed action would not induce development in a floodplain and would not reduce the floodplain. While the proposed action is critical because it is located in the 1/500 annual floodplain, performance to the 1/500 year annual chance event is not feasible as described under Step 6.

Step 8: Implement the action. DWR intends to construct the new water conveyance facilities as soon as possible based on conclusion of the project approval processes, targeted to be initiated in the 2016 construction season.